In the Claims:

Please cancel claim 1, without prejudice, and amend claims 2, 6, 7, 8 and 13 as follows:

1. (Cancelled)

2. (Currently amended) The method of detecting according to ~~claim 1~~claim 6, wherein a constant relative speed is set between the surface of the recording medium and the flying slider during the rotation of the recording medium.

3. (Original) The method of detecting according to claim 2, wherein said collision detector is designed to detect a sound induced based on a collision between the surface of the recording medium and the flying slider.

4. (Original) The method of detecting according to claim 3, wherein said collision detector is an acoustic emission sensor mounted on the flying slider.

5. (Original) The method of detecting according to claim 4, wherein said acoustic emission sensor is a piezoelectric element.

6. (Currently amended) ~~The~~A method of detecting ~~according to claim 1~~a protrusion on a recording medium, comprising:

obtaining an index signal specifying ~~the~~a standard attitude of the recording medium ~~when the angular position signal is generated; and~~;

generating a sine wave signal based on a period of the index ~~signal.~~signal, the sine wave signal specifying an angle of rotation of the recording medium from the standard attitude of the recording medium;

obtaining a detection signal output from a collision detector designed to detect a collision between a surface of the recording medium and a flying slider; and

determining a collision between the surface of the recording medium and the flying slider based on the sine wave signal and the detection signal.

7. (Currently amended) The method of detecting according to claim 6, further comprising:

~~obtaining an index signal specifying the standard attitude of the recording medium when the angular position signal is generated; and~~

generating a cosine wave signal based on a period of the index ~~signal.~~signal, the cosine wave signal specifying the angle of rotation of the recording medium from the standard attitude of the recording medium, wherein

the collision is determined based on the sine wave signal, the cosine wave signal and the detection signal.

8. (Currently amended) The method of detecting according to claim 7, further comprising:

generating a first reference signal specifying a product of the sine wave signal and the detection signal;

generating a first integral signal specifying an integral value of the first reference signal over a predetermined number of revolution of the recording medium;

generating a second reference signal specifying a product of the cosine wave signal and the detection signal;

generating a second integral signal specifying an integral value of the second reference signal over a predetermined number of revolution of the recording medium; and

generating a comparative reference signal specifying a sum of the integral values of the first and second integral ~~signals.~~signals, wherein

the collision is determined based on the comparative reference signal.

9. (Original) The method of detecting according to claim 8, wherein a constant relative speed is set between the surface of the recording medium and the flying slider during the rotation of the recording medium.

10. (Original) The method of detecting according to claim 9, wherein said collision detector is designed to detect a sound induced based on a collision between the surface of the recording medium and the flying slider.

11. (Original) The method of detecting according to claim 10, wherein said collision detector is an acoustic emission sensor mounted on the flying slider.

12. (Original) The method of detecting according to claim 11, wherein said acoustic emission sensor is a piezoelectric element.

13. (Currently amended) A detecting apparatus for a protrusion on a recording medium, comprising:

a function generating circuit designed to generate a sine wave signal ~~of a trigonometric function synchronized with~~and a cosine wave signal based on rotation of the recording medium;

a first multiplying circuit designed to multiply a detection signal from an acoustic emission sensor by ~~a~~the sine wave signal so as to generate a first reference ~~signal;~~signal, the detection signal designating an elastic wave between a target object and a surface of the recording medium;

a first integration circuit designed to calculate an integral value of the first reference signal over a predetermined number of revolution of the recording medium;

a second multiplying circuit designed to multiply a detection signal from the acoustic emission sensor by ~~a~~the cosine wave signal so as to generate a second reference signal;

a second integration circuit designed to calculate an integral value of the second reference signal over a predetermined number of revolution of the recording medium; and

an addition circuit designed to add outputs from the first and second integration circuits to each other.

14. (Original) The detecting apparatus according to claim 13, wherein said acoustic emission sensor is a piezoelectric element.

15. (Original) The detecting apparatus according to claim 14, wherein said piezoelectric element is a PZT element.

16. (Original) The detecting apparatus according to claim 13, comprising:

a spindle motor generating a driving force for the rotation of the recording medium;

a flying slider opposed to a surface of the recording medium mounted on a rotation shaft of the spindle motor, said flying slider supporting the acoustic emission sensor; and

a controlling circuit designed to control rotation speed of the rotation shaft based on position of the flying slider relative to the rotation shaft of the spindle motor.

17. (Original) The detecting apparatus according to claim 16, wherein said acoustic emission sensor is a piezoelectric element.

18. (Original) The detecting apparatus according to claim 17, wherein said piezoelectric element is a PZT element.